

API Documentation: Library System

Project Overview

This project demonstrates a RESTful API for a Library Management System using **Node.js**, **Express.js**, and **MongoDB**. It supports CRUD operations for managing books in a library.

Technology Stack

- Backend:** Node.js, Express.js
- Database:** MongoDB
- Tool:** Postman (for API testing)

Functional Endpoints

Method	Endpoint	Description	Sample Input (Body/Param)
POST	/books	Add a new book	JSON: { "title": "...", "author": "...", "isbn": "...", "category": "...", "availableCopies": 5 }
GET	/books	Get all books	-
GET	/books/:id	Get a book by ID	:id = MongoDB ObjectId
PUT	/books/:id	Update book by ID	JSON: { "availableCopies": 10 }
DELETE	/books/:id	Delete book by ID	:id = MongoDB ObjectId

MongoDB Connection:

```
mongoose.connect('mongodb://localhost:27017/library')
```

Sample Book JSON:

```
{  
  "title": "Wings of Fire",  
  "author": "A.P.J. Abdul Kalam",  
  "isbn": "9788173711466",  
  "category": "Autobiography",  
  "availableCopies": 5  
}
```

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✍ Screenshot (Postman POST request with success response)

1. POST (Add Books) (url : http://localhost:3000/books)

The screenshot shows the Postman interface with a successful API call. The URL is `http://localhost:3000/books`. The request method is `POST`. The body contains the following JSON:

```
1 {
2   "title": "Wings of Fire",
3   "author": "A.P.J Abdul Kalam",
4   "isbn": "9788173711466",
5   "category": "Autobiography",
6   "availableCopies": 5
7 }
```

The response status is `201 Created`, with a duration of `60 ms` and a size of `406 B`.

2. Get (All books)

The screenshot shows the Postman interface with a successful API call. The URL is `http://localhost:3000/books`. The request method is `GET`. The headers section includes `Postman-Token`, `Host`, `User-Agent`, `Accept`, `Accept-Encoding`, `Connection`, and `Content-Type` set to `application/json`.

The response body is a JSON array of books:

```
1 [
2   {
3     "_id": "696def1cccd5249a88f36d90f",
4     "title": "The Alchemist",
5     "author": "Paulo Coelho",
6     "isbn": "9780661122415",
7     "category": "Fiction",
8     "availableCopies": 4
9   },
10  {
11    "_id": "69736cef475e05b80df4b2e1",
12    "title": "Wings of Fire",
13    "author": "A.P.J Abdul Kalam",
14    "isbn": "9788173711466",
15    "category": "Autobiography",
16    "availableCopies": 5,
17  }
18 ]
```

A Snipping Tool window is visible in the foreground, indicating a screenshot was taken.

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3. GET (One Book)

The screenshot shows the Postman interface with a successful API call. The URL is `http://localhost:3000/books/6874fceccdd18fb5492567d6`. The response body is:

```
{  
  "_id": "6874fceccdd18fb5492567d6",  
  "title": "Wings of Fire",  
  "author": "A.P.J Abdul Kalam",  
  "isbn": "978813711466",  
  "category": "Autobiography",  
  "availableCopies": 5,  
  "__v": 0  
}
```

4. PUT (Update)

The screenshot shows the Postman interface with a successful API call. The URL is `http://localhost:3000/books/686def1cccd5240a88f36d00f`. The request body is:

```
{"availableCopies": 10}
```

The response body is:

```
{  
  "_id": "686def1cccd5240a88f36d00f",  
  "title": "The Alchemist",  
  "author": "Paulo Coelho",  
  "isbn": "9780061122415",  
  "category": "Fiction",  
  "availableCopies": 10  
}
```

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5. DELETE (Remove)

The screenshot shows the Postman interface with the following details:

- Collection:** Sania gade's Workspace
- Request Type:** DELETE
- URL:** http://localhost:3000/books/6874fcecd18fbe5492567d6
- Body:** None (This request does not have a body)
- Response:** 200 OK (6 ms, 261 B)
JSON response:

```
1 {  
2   "message": "Book deleted"  
3 }
```



The screenshot shows the MongoDB Compass interface with the following details:

- Database:** library
- Collection:** books
- Documents:** 6
- Document 1:**

```
_id: ObjectId('686def1cc5240a88f36d00f')  
title: "The Alchemist"  
author: "Paulo Coelho"  
isbn: "9780061122415"  
category: "Fiction"  
availableCopies: 10
```
- Document 2:**

```
_id: ObjectId('68736cef475e05b80df4b2e1')  
title: "Wings of Fire"  
author: "A.P.J Abdul Kalam"  
isbn: "9788137311466"  
category: "Autobiography"  
availableCopies: 5  
_v: 0
```
- Document 3:**

```
_id: ObjectId('6873c8df97800025effd463c')  
title: "To Kill a Mockingbird"  
author: "Harper Lee"  
isbn: "9780060935467"  
category: "Classic"  
availableCopies: 4  
_v: 0
```
- Document 4:**

```
_id: ObjectId('6873c90197800025effd463e')  
title: "The Theory of Everything"  
author: "Stephen Hawking"  
isbn: "9780061770960"  
category: "Science"  
availableCopies: 3  
_v: 0
```

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Run Project :

npm install

node app.js

Folder Structure

library-api/

```
|── models/  
|   └── book.js  
|── routes/  
|   └── books.js  
|── app.js  
|── package.json
```